DashBox™ User's Manual

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Preliminary

DashBox™

DASHBOX PACKAGE CONTENTS

The following lists the contents of each DashBox package:

DASHBOX STANDARD:

- 1 DashBox
- 1 5V Wall Transformer

DASHBOX WITH ZIGBEE®:

- 1 DashBox.
- 1 External Antenna.
- 1 5V Wall Transformer.

OPTIONAL ACCESSORIES:

- STS (Serial-to-Stereo) cable.

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DASHBOX FEATURES

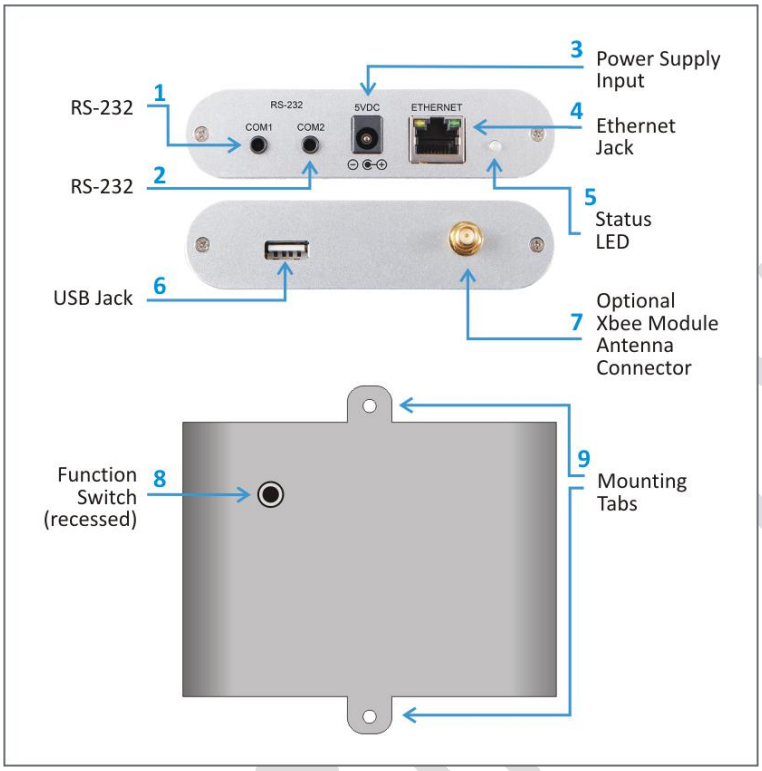

Figure 1
DashBox Overview

RS-232 JACKS

Figure 1 (1) and (2) shows the two RS-232 communication ports. The COM1 and COM2 ports are both used to connect the DashBox to an **ECM-1240** or a **GreenEye Monitor**. An optional "**STS Cable"** is used to connect from these 3.5mm stereo jacks to the serial communication terminal of an **ECM-1240** or a **GreenEye Monitor**.

The two RS-232 COM ports allows up to two energy monitors to independently communicate with the DashBox.

POWER JACK

The DashBox is powered via a 5V DC power supply plugged into the barrel jack shown in Figure 1 (3).

ETHERNET JACK

Figure 1 (4) shows the location of the "RJ-45" Ethernet jack for connection to a network.

STATUS LED

Figure 1 (5) shows the "Status LED". This LED is used to indicate various operating states of the DashBox. This LED is also used to indicate which "Function" to select when using the function switch Figure 1(8).

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LED Operating Status

- **"Green (solid)"** The DashBox is fully powered and operational
- **"Red (brief flash while solid green)"** Under normal operating conditions this indicates that a packet is being received from the Energy Monitor
- **"Red (Solid)"** The DashBox is powering up and charging up the "Super Capacitors". This could take from a few seconds to a couple of minutes depending on the length of time the DB has been powered down. If this occurs during normal operating conditions, this would indicate a fault with the system
- **"Red (Flash)"** Under normal operating conditions this indicates that a packet is being received from the Energy Monitor
- **"Orange (Solid)"** The DashBox "Super Capacitors" are charged up and the system is now booting up. This occurs after the "solid red LED" sequence when the DB is powered up

- booting, the LED will stay orange while the power backup is charging.
    i. The power backup provides enough time for a safe shutdown of the DashBox in case of a power outage.
- The LED will flash red upon receiving a packet.
- The LED will flash various colours upon initiating a switch sequence.

USB Jack:

The **USB Jack** on the DashBox is reserved for an optional **WiFi USB** to provide wireless networking.

Function Switch:

The "Function PB Switch" is a push-button (PB) switch which is recessed below the surface of the DashBox's bottom. Something small enough to reach the button; such as, a pen tip or paper clip is required to activate this switch.

To activate the switch briefly press and release the recessed push switch under the DashBox. After releasing there will be an LED sequence:

- LED red briefly
- LED green
- LED orange briefly
- LED green
- LED off briefly
- back to normal operation

There are 3 options within the sequence:

1. Reboot DashBox.
    - When the LED turns red, press then release the switch. Afterwards, the LED will turn green and the DashBox will jump into its reboot sequence.

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2. Reset Network Settings
    - When the LED turns orange, press then release the switch. The network settings will be set to our defaults and the reboot process described above will start.

3. Reset Dashboard Administration User/Pass.
    - When the LED is clear press then release the switch. The DashBox will reset the administration password to the following:
        - Username: **admin**
        - Password: **pass1**

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CONNECTING AN ENERGY MONITOR

The way you communicate with your Energy Monitor is likely going to be different depending on the model.

- The **DashBox Standard** model requires either **STS cables** or a **Network Connection** to receive packets from your Brultech Energy Monitor.
- The **DashBox with Zigbee®** model can log wirelessly as long as your monitor also has a **Zigbee® module**. This model also supports **STS cables**.

We recommend a **maximum** of 2 GEM devices, or 1 GEM device and a couple of ECM-1240s.
The different **Connection Strategies** are shown on the following pages.

DASHBOARD STANDARD USING STS CABLES

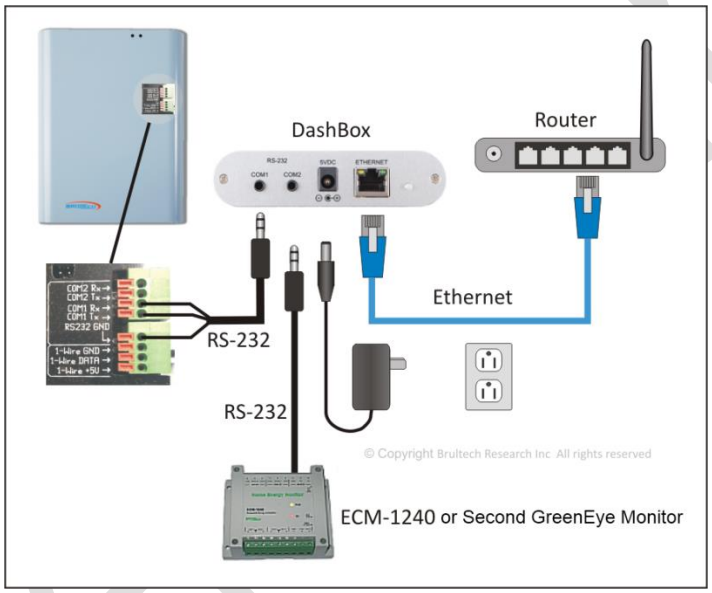

Figure 2
DashBox Standard via STS Cables

The recommended way to setup the **DashBox Standard** with your Energy Monitors is via the **STS cables**. The 3-wire end of the STS cable is connected to the serial inputs on the ECM-1240 or GreenEye Monitor and the stereo jack end is plugged into the DashBox.

Using this method will ensure that there's a constant link between the DashBox and your Energy Monitors regardless of network status.

The DashBox can support 2 GEMs, 2 ECM-1240s, or one of each using this method.

DASHBOX WITH ZIGBEE®:

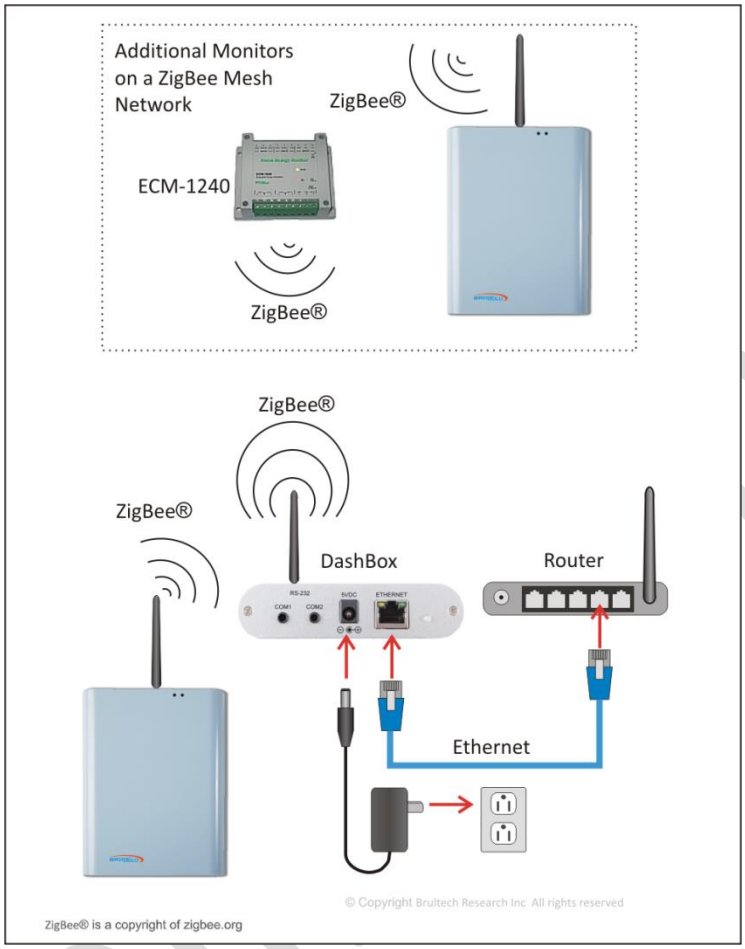

Figure 3
DashBox with Zigbee®

The **DashBox with Zigbee®** can be used to connect the DashBox to any of our monitors installed with **XBee modules**. Additional monitors can be added via our **STS cables**.

The **Zigbee®** connection is only for logging packets and **can't** be used for a wireless network connection via our EtherBee or similar products.

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BOTH MODELS VIA NETWORK CABLES:

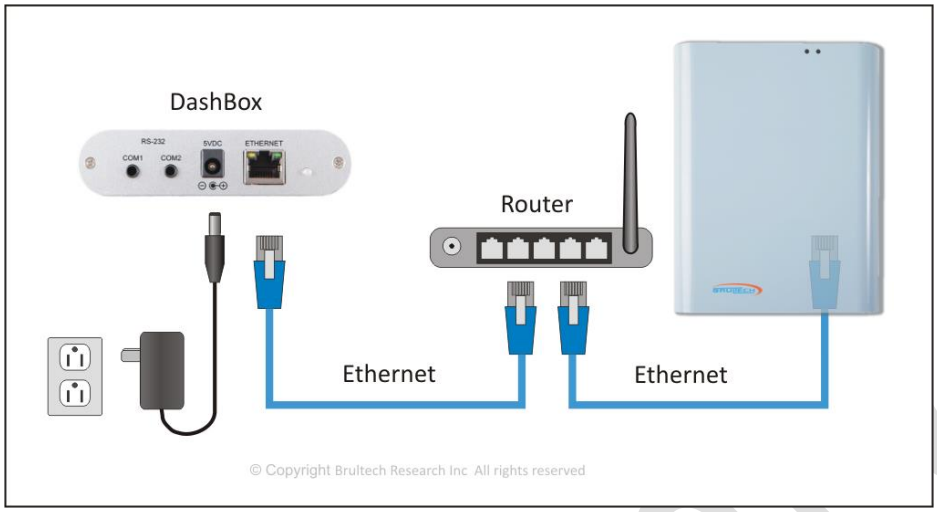

Figure 4

Both the **DashBox Standard** and **DashBox with Zigbee®** can also support packets through the network using the **HTTP protocols** available on each Energy Monitor. The DashBox must be given a **Static IP address** for logging over the network as any IP change will interrupt the flow of data.

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CONNECTING THE DASHBOX TO A NETWORK

There's 2 ways to connect the DashBox to your network:

1. Wired Ethernet.
2. WiFi USB:

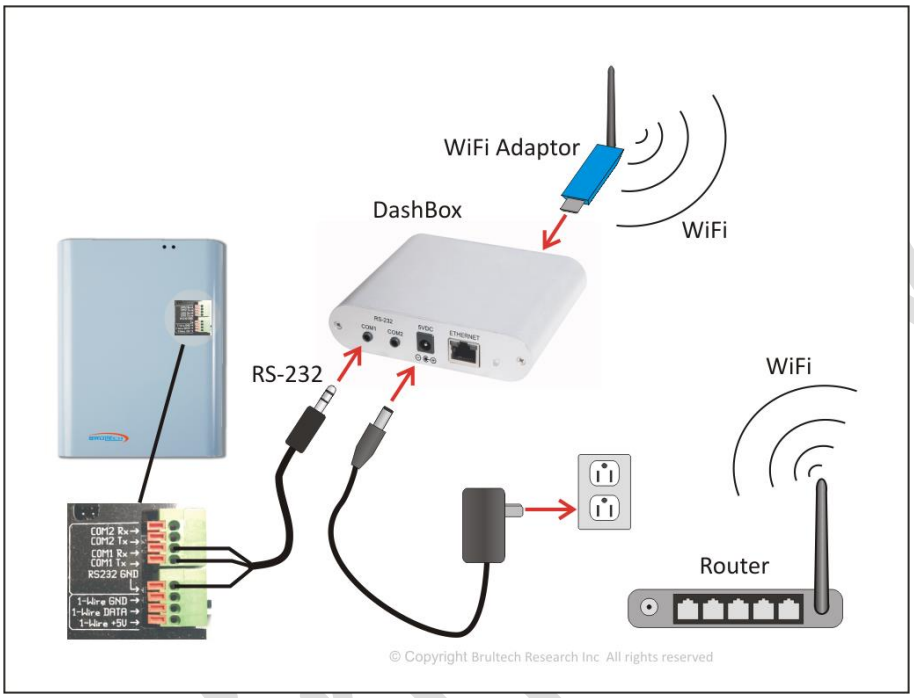

Figure 5

The DashBox optionally supports a WiFi connection via a **WiFi USB** stick. We've currently tested the following sticks:

- **TP-Link TL-WN721N** (http://www.tp-link.com/ca/products/details/?model=TL-WN721N)

The DashBox only supports **WiFi USB sticks** from the **Atheros AR9001** and **AR9002** family.

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FINDING THE DASHBOX ON THE NETWORK

Finding your DashBox on your Network initially depends on your communication scenario.

- If you're using **Ethernet**:

  The DashBox is set to DHCP so your router will automatically assign it an IP address. You can then log-in to your Router and locate the DashBox in the list of DHCP clients.
  Optionally, in our GreenEye Setup software, we provide a tool that does a basic scan over your entire network. It will display any IP address on your network that's running a service over Port 80. You can use this to locate your DashBox by trying the different IP addresses it provides.

- If you're using **WiFi USB**:

  Make sure you have your WiFi USB stick plugged in before booting the unit, if it isn't you must unplug the unit, wait for it to power down, plug in the WiFi stick, and reapply power for it detect the USB stick.

  Once booted, the DashBox is automatically setup to open an Access Point. It will be displayed as "DashBox" on your wireless networks with the default password "brultech". You can then connect to the DashBox and access the Dashboard at http://192.168.6.1/. From there you can reconfigure your DashBox to your network.

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CONFIGURING THE ENERGY MONITOR:

The DashBox is setup to allow a direct connection to your Energy Monitor using a TCP/IP Client connection.

- **COM1** and **Zigbee®** can be accessed through your DashBox IP address and Port 8001
- **COM2** can be accessed through your DashBox IP address and Port 8002

The ECM-1240 can be setup using this method with IA software version 2.50 or higher. TCP/IP client mode was added to the software in version 2.50.

The GreenEye Monitors internal Setup Page can be accessed through the DashBox in any web browser using the IP of the DashBox and one of the ports above depending on communication port.

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DASHBOARD CONFIGURATION

Once setup, the Dashboard can be accessed by inputting the DashBox's IP Address into any web browser.

STEP 1 - INITIAL SETTINGS AND ADMIN ACCOUNT CREATION

EULA - End User License Agreement
This license agreement (hereinafter Agreement) is an agreement between you (the person or company who is being licensed to use the Software or Documentation) and Brultech (hereinafter We/us/our). The Agreement applies to all products/software/scripts/services you purchase or test from us.
1. By purchasing the Software you acknowledge that you have read this Agreement, and that you agree to the content of the Agreement and its terms, and agree to use the Software in compliance with this Agreement.
2. The Agreement comes into legal force at the moment when you order our Software from our site or receive it through email or on data medium at the our discretion.
3. We are the copyright holder of the Software. The Software or a portion of it is a copyrightable matter and is liable to protection by the law. Any activity that infringes terms of this Agreement violates copyright law and will be prosecuted according to the current law. We reserve the right to revoke the license of any user who is holding an invalid license.
4. This Agreement gives you the right to use only one copy of the Software on the DashBox solely for your own personal or business use, subject to all other terms of this Agreement. Any distribution of the Software without our consent, including noncommercial distribution is regarded as violation of this Agreement and entails liability, according to the current law.
5. You may not use any part of the code in whole or part in any other software or product or website.
6. You may not give, sell, distribute, sub-license, rent, lease or lend any portion of the Software or Documentation to anyone. You may not place the Software on a server so that it is accessible via a public network such as the Internet for distribution purposes.
7. You are bound to preserve the copyright information intact, this
Initial Configuration
Timezone
(GMT-05:00) Eastern Time (US & Canada)
Locale
English (Canada)
User
admin
Password
Confirm Pass
I agree with License Agreement
Save Settings

Figure 6

The first time you access your DashBox you will be asked to pick a

- **Time zone**
  - All dates are stored in UTC time, thus your Time zone is used to convert times into your local time.
- **Locale**
  - Locale is used for regional settings such as currency symbols and formats.
- **User name**
- **Password**
  - Your User name and Password is used for Dashboard Configuration. It's important to remember this value as it's required to setup billing rates, energy monitors, dashboards, etc.

Step 2 – Login to access the Settings Menu

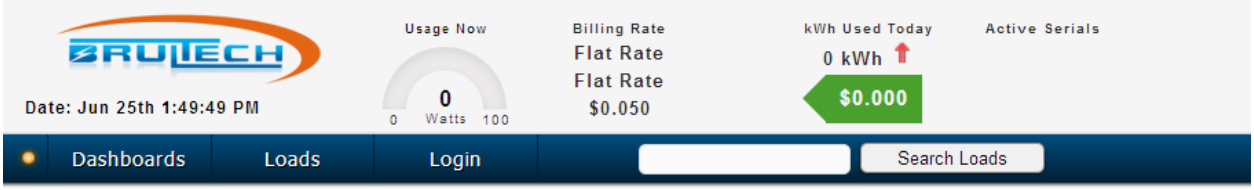


Figure 7

After specifying and creating the information in the first step, you will be redirected to the **Dashboard** home page. At this point no data is being logged to the system; therefore, everything in the **Status Bar** will be shown as zero.
At this point you'll want to login to the **Settings** section.

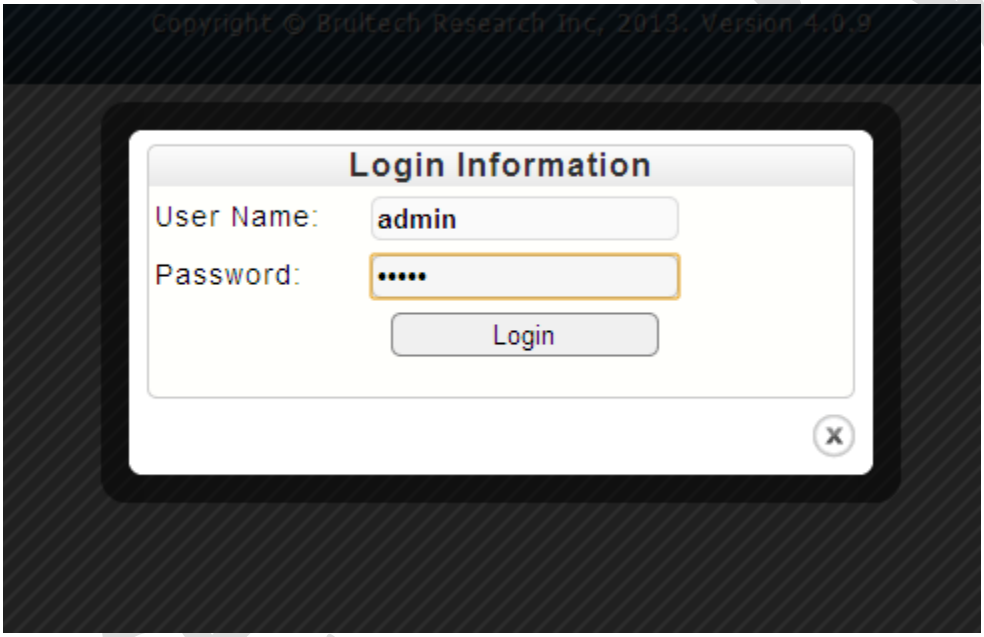


Figure 8

When you click **Login**, you'll be prompted for your **User Name** and **Password**. These are the values you entered in the first step. Type them in and click **Login**.

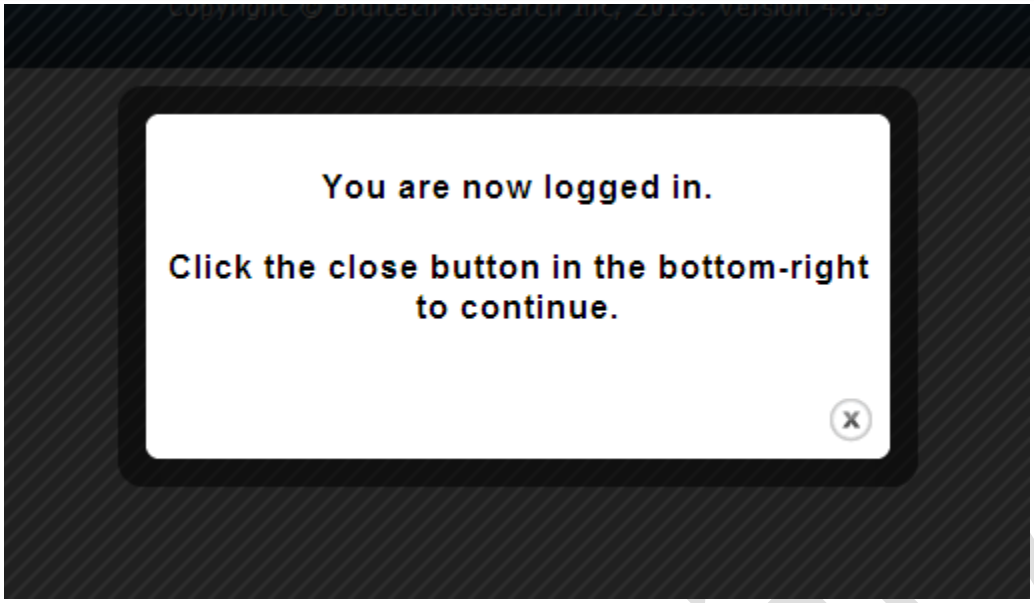


Figure 9

STEP 3 – ACCESSING THE SETTINGS SECTION

Figure 10

Once logged in, Dashboard controls will pop up on the Dashboard home page. Ignore these controls for now as you'll want to connect your monitor and start logging beforehand.
Click **Settings** in the top menu.

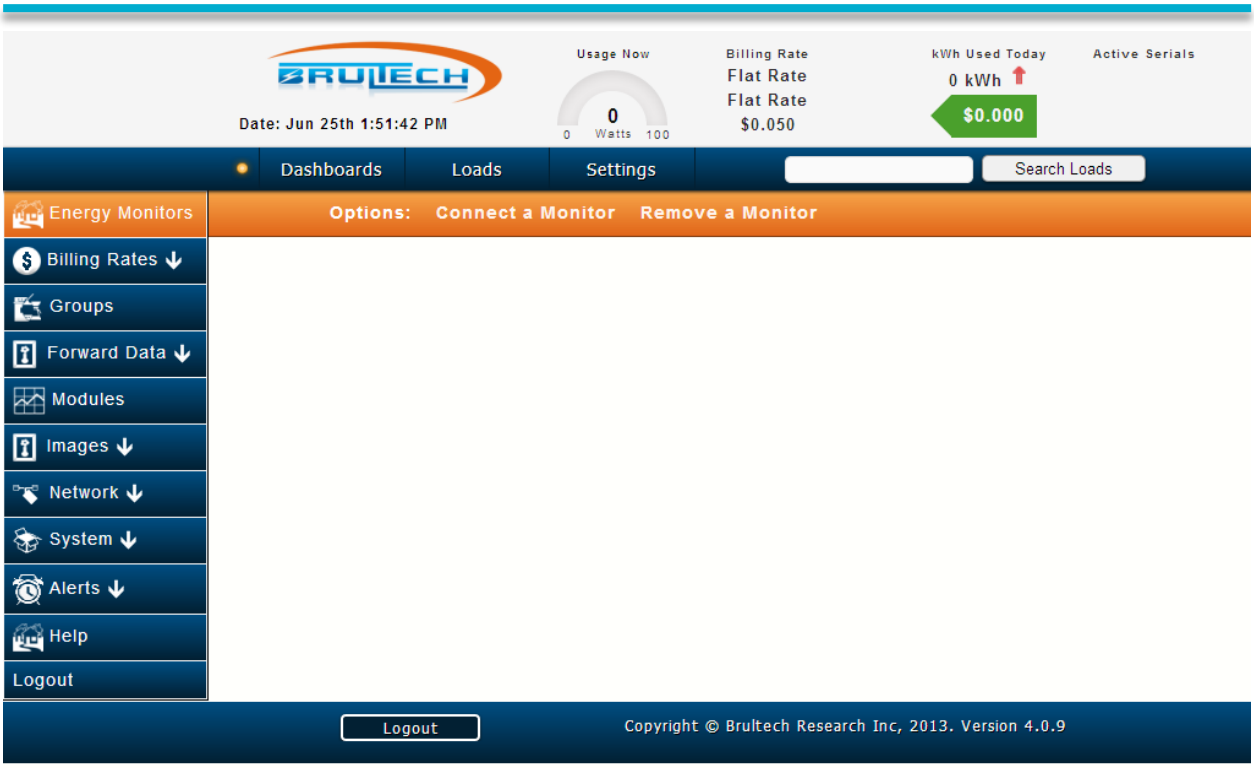


Figure 11

Energy Monitors is the default page in the **Settings** section. You'll want to get your Energy Monitor logging at this point.

STEP 4 – CONNECTING YOUR ENERGY MONITOR

If you already know your **Serial Number,** click on **Connect a Monitor**.
If not, you can find your **Serial Number** by viewing the **Raw Data** coming into the DashBox. You can do this by clicking **System**, then **Raw Data**. The page will open in a new Window.

```
2013-02-07 20:28:39: Serial Number is 01000010 and seconds is 13185699 2013-2-7 19:38:25
2013-02-07 20:28:47: Serial Number is 01000010 and seconds is 13185707 2013-2-7 19:38:33
2013-02-07 20:28:55: Serial Number is 01000010 and seconds is 13185715 2013-2-7 19:38:41
2013-02-07 20:29:03: Serial Number is 01000010 and seconds is 13185723 2013-2-7 19:38:49
```

An example of **Raw Data** coming from the GEM is above. The **Serial Number** can be seen as **01000010** for our example.

```
2013-02-04 12:06:49: sec=286583&v=5&dev=44&id=10&wsa1=2&wsa2=2&wsap1=0&wsap2=0&A1ws=2&A2ws=2&A
2013-02-04 12:06:57: sec=286593&v=5&dev=40&id=10&wsa1=1&wsa2=1&wsap1=0&wsap2=0&A1ws=1&A2ws=1&A
2013-02-04 12:06:58: sec=286593&v=5&dev=41&id=10&wsa1=2&wsa2=2&wsap1=0&wsap2=0&A1ws=2&A2ws=2&A
```

An example of **Raw Data** coming from an ECM-1240 is above. The **Serial Number** is a combination of the **ID** number and the **Dev** number. You take the **ID** number at the front, and the **Dev** number at the end, and add 0s in the middle until the **Serial Number** is 6 digits. The Serial Number in this example is **100044**.

Figure 12

Once you have the **Serial Number**, input it into the **Serial Number** text box, select the correct **Device Type** from the dropdown box, and click **Save Device**.

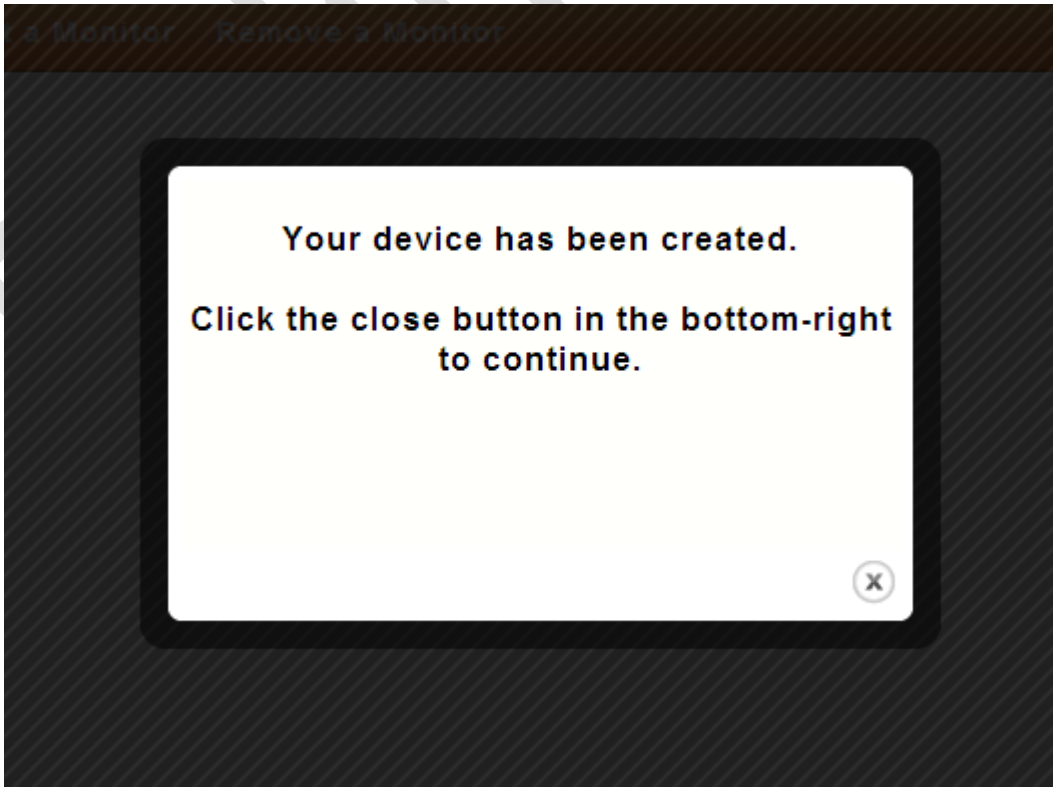


Figure 13

STEP 5 – SETTING UP YOUR ENERGY MONITOR

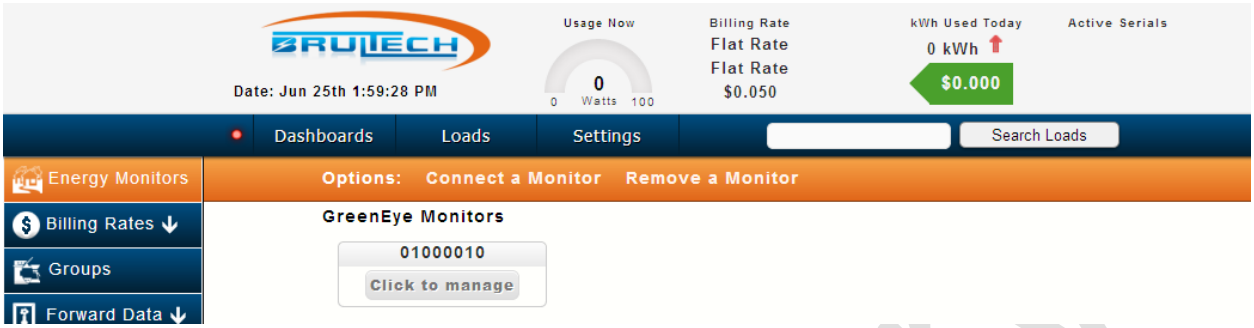


Figure 14

The page will refresh after clicking out of the device creation box, and your **Energy Monitor** will pop up. Click on **Click here to manage** to view the **channels** of your Energy Monitor.

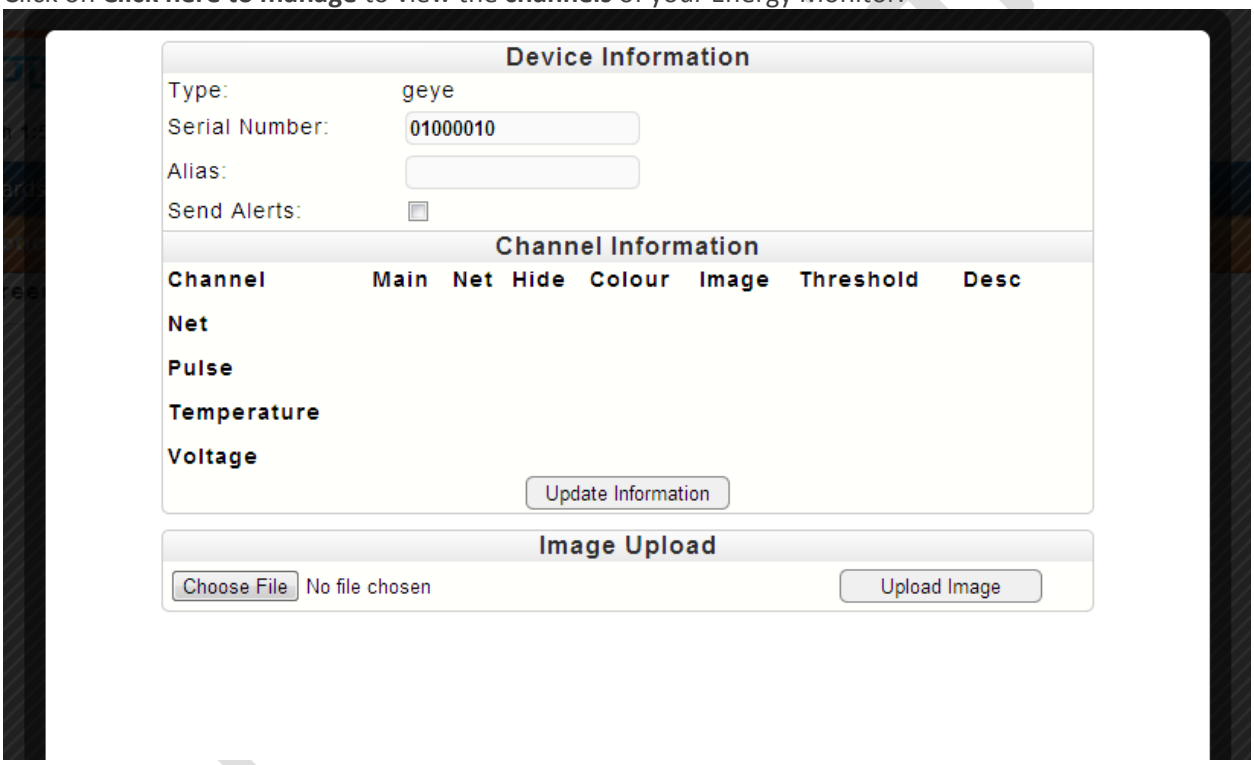
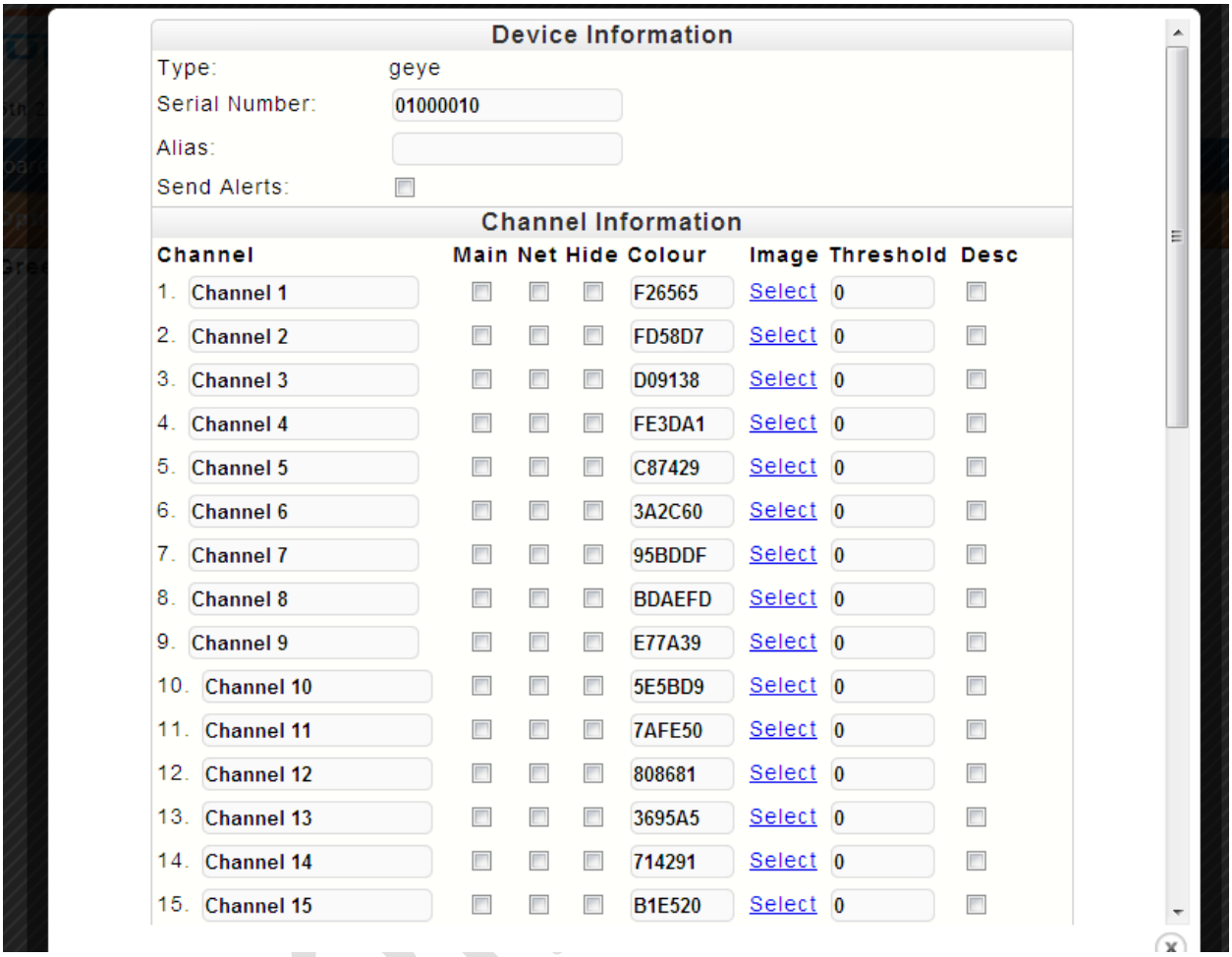


Figure 15

On first click, you may see a screen the same as above. **Channels** are created upon receiving the first packet from the Energy Monitor. Wait a minute then try refreshing the page.
If the above screen persists, check the **Raw Data** page under **System** to see if any data is coming in.
If data is coming in, compare your **Serial Number** with the **Serial Number** you have created for your device.

If not, recheck the connections for your device and the configuration of your device.

NOTE: If you're using our STS cable or Zigbee, for the GEM you must use the Binary GreenEye with Date packet format. For the ECM-1240, you must use the Binary packet format.



Device Information

Type: geye

Serial Number: 01000010

Alias:

Send Alerts:

Channel Information

Channel	Main	Net	Hide	Colour	Image	Threshold	Desc
1. Channel 1				F26565	Select	0	
2. Channel 2				FD58D7	Select	0	
3. Channel 3				D09138	Select	0	
4. Channel 4				FE3DA1	Select	0	
5. Channel 5				C87429	Select	0	
6. Channel 6				3A2C60	Select	0	
7. Channel 7				95BDDF	Select	0	
8. Channel 8				BDAEFD	Select	0	
9. Channel 9				E77A39	Select	0	
10. Channel 10				5E5BD9	Select	0	
11. Channel 11				7AFE50	Select	0	
12. Channel 12				808681	Select	0	
13. Channel 13				3695A5	Select	0	
14. Channel 14				714291	Select	0	
15. Channel 15				B1E520	Select	0	

Figure 16

Pre

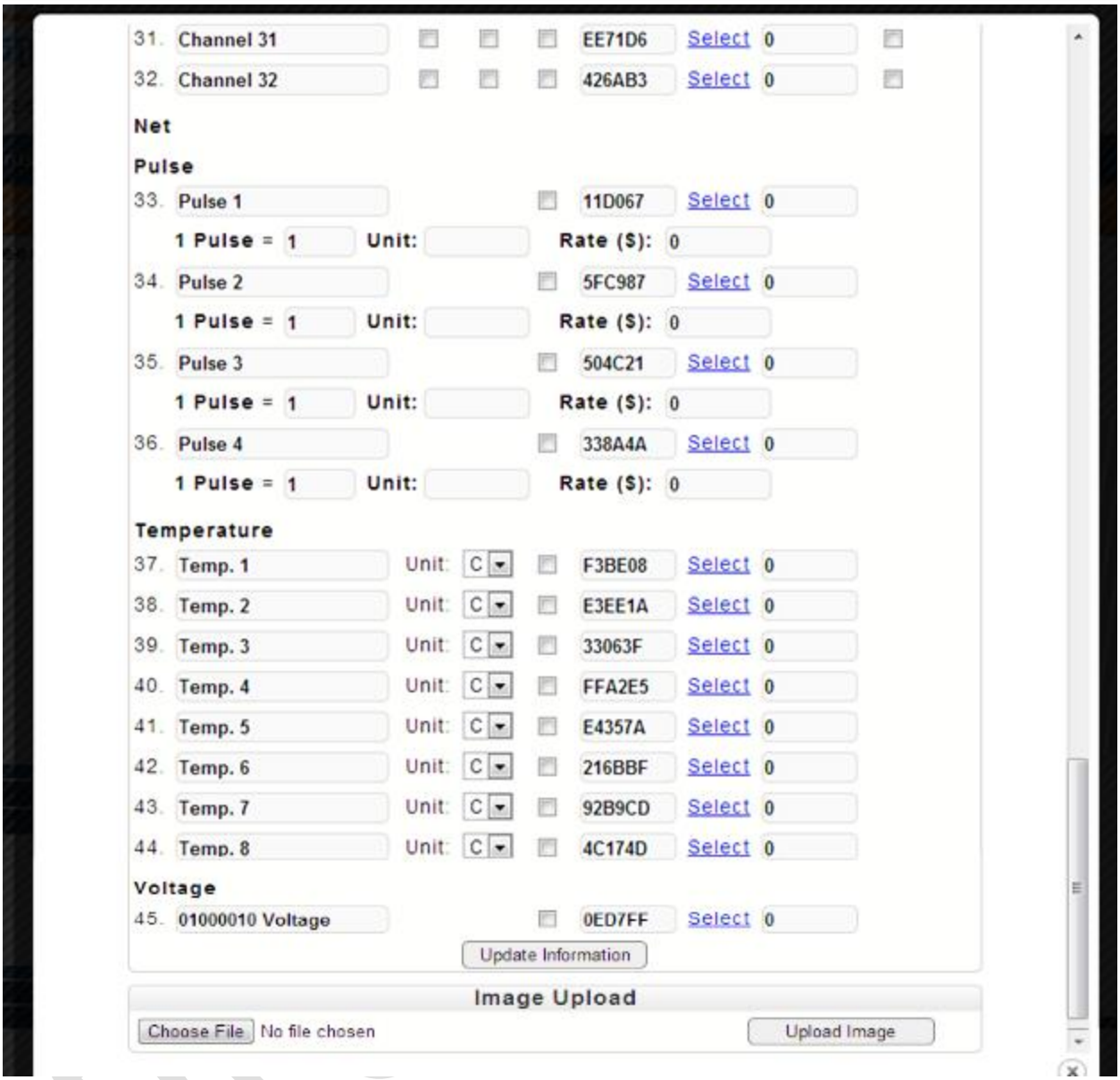

31. Channel 31 EE71D6 Select 0
32. Channel 32 426AB3 Select 0
Net
Pulse
33. Pulse 1 11D067 Select 0
1 Pulse = 1 Unit: Rate ($): 0
34. Pulse 2 5FC987 Select 0
1 Pulse = 1 Unit: Rate ($): 0
35. Pulse 3 504C21 Select 0
1 Pulse = 1 Unit: Rate ($): 0
36. Pulse 4 338A4A Select 0
1 Pulse = 1 Unit: Rate ($): 0
Temperature
37. Temp. 1 Unit: C F3BE08 Select 0
38. Temp. 2 Unit: C E3EE1A Select 0
39. Temp. 3 Unit: C 33063F Select 0
40. Temp. 4 Unit: C FFA2E5 Select 0
41. Temp. 5 Unit: C E4357A Select 0
42. Temp. 6 Unit: C 216BBF Select 0
43. Temp. 7 Unit: C 92B9CD Select 0
44. Temp. 8 Unit: C 4C174D Select 0
Voltage
45. 01000010 Voltage 0ED7FF Select 0
Update Information
Image Upload
Choose File No file chosen
Upload Image

Figure 17

The above example shows the **Channel** layout for a GEM. Once the **Channels** populate, you can start configuring them. A description of what each setting does can be found in our **DashBox Dashboard** manual.

Once you get this far you'll want to verify your readings and set up your **Billing** and **Network** settings. When everything is configured go to **System**, **Clear Database** and clear the **Minute** and **Hour** data to start with fresh data.

NETWORK SETTINGS

In most cases, you'll want to change your Network settings right away. You can do this by logging into the **Settings** section and using the **Network** settings in the menu.

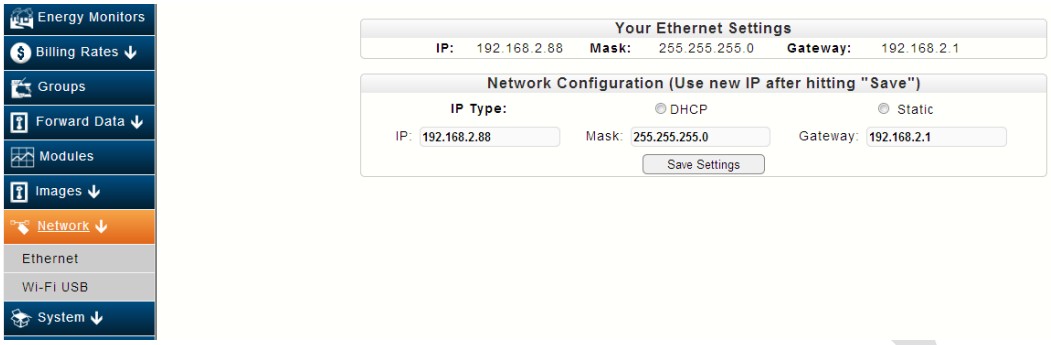


Figure 18

For Ethernet, you're likely going to want to define a **Static** address. A **Static** address will ensure that you can always access the DashBox from the same **IP address**.

The **DHCP** and **Static** values are automatically pulled from the Network settings, the **Mask** and **Gateway** are likely not going to change. You can either keep the IP that your router already assigned to the DashBox or input your own **IP address** within the same range.

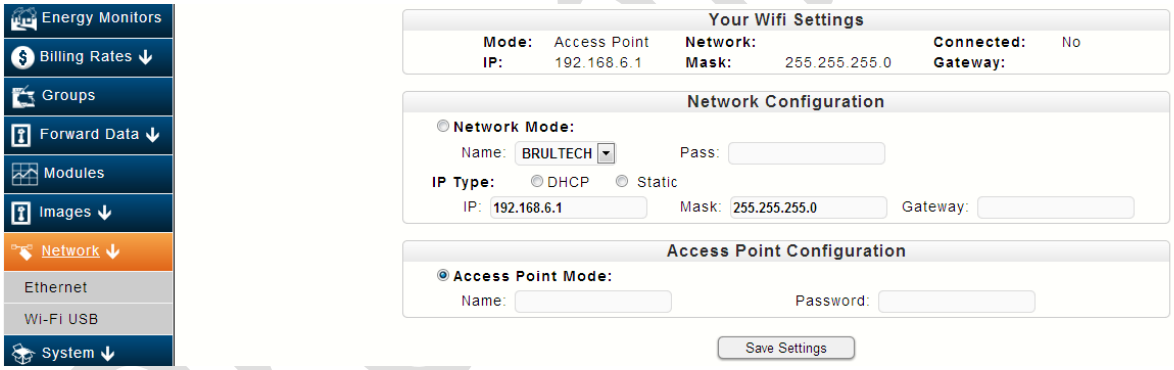


Figure 19

WiFi can be configured either as a Network connection or an Access Point.

In Network mode, select your SSID and input the password for your network. Then either set a static IP or select DHCP.

In Access Point mode, define the name of the network and the password you want to use. Upon rebooting, the Access Point will show up on your wireless network lists.